(19) World Intellectual Property Organization

International Bureau

(43) International Publication Date 15 January 2004 (15.01.2004)



10/520554 (10) International Photication Number WO 2004/005582 A2

PCT

(51) International Patent Classification7:

C25B

(21) International Application Number:

PCT/US2003/021220

(22) International Filing Date:

7 July 2003 (07.07.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/394,141

5 July 2002 (05.07.2002) US

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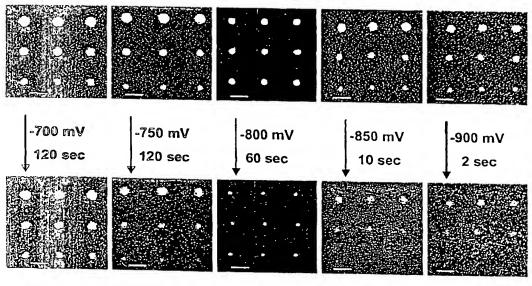
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

 without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ELECTROCHEMICAL MINIATURIZATION OF ORGANIC MICRO-AND NANOSTRUCTURES



(57) Abstract: The invention provides a simple and convenient strategy for reducing the dimensions of organic micro- and nanostructures on metal surfaces. By varying electrochemical desorption conditions, organic structures patterned by Dip-Pen Nanolithography or any of the micro-contact printing procedures can be gradually desorbed in a controlled fashion. The electrochemical desorption is initiated at the exterior of the feature and moves inward as a function of time. The desorption process and adsorbate desorption are modified and controlled as a function of substrate morphology, adsorbate head and tail groups, and electrolyte solvent and salt. Different nanostructures made of different adsorbates can be miniaturized based upon judicious selection of adsorbate and supporting electrolyte.